

Experiment 1: Simple Crystals on a String

What you need.

- A common chemical such as table salt, sugar, or epsom salts.
- Distilled water.
- Heat-resistant glass or 400ml beaker.
- Stir rod.
- Pan.
- Heat source (stove or lab burner).
- Pencil.
- String.
- Paper clip.

What to do.

Make a saturated solution. Start with approximately 250ml of distilled water in a pan. Bring it to a slow boil and add a teaspoon or two of your chemical. When this dissolves, add more. Keep adding and stirring chemical until no more will dissolve. This is a saturated solution.

Pour this solution into a clean, heat-resistant glass or beaker. Suspend a string into the glass from a pencil laid across the top of the glass. You can tie a paper clip at the lower end of the string so it hangs straight down. Wrap the entire glass/pencil/string apparatus in a towel so it is covered and so it cools slowly. It is important to keep the experiment covered to prevent dust and other unwanted material from disturbing crystal growth. Observe the formation of crystals on the string every day. Left undisturbed, the crystals should grow larger every day until the solution runs dry.

What can be learned.

Making a saturated solution requires heating and mixing until no more salt can be dissolved in the water.

Crystals will form on a string suspended in a saturated solution. As the solution cools, crystallization begins on the rough surface of the string. Crystals continue to form as the cooling solution "gives up" more dissolved salt onto the growing crystal mass.

Different chemical solutions form different crystal shapes.